UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,624	08/25/2003	Robert Hoffman	ANDIP035	5322

22434   7590   12/09/2008
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EXAMINER
HAN, CLEMENCE S

ART UNIT	PAPER NUMBER
2416	

MAIL DATE	DELIVERY MODE
12/09/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *30 July 2008*.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-33* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-33* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some * c) ☐ None of:

       1. ☐ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____.

       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   Claim 1-29 and 31-33 rejected under 35 U.S.C. 103(a) as being unpatentable over

Morgan et al. (US Pub. 2003/0076849) in view of Matsuo et al. (US Pub. 2003/0227925).

       Regarding claim 1, 11, 22 and 23, Morgan teaches a method of allocating queues

in a network device, the method comprising: receiving a packet at an ingress port of the

network device [0006], [0008], making a classification for an incoming packet [0027],

the classification comprising at least one of an egress port number or an ingress port

number [0032]; determining whether a previously-allocated queue exists for the

classification [0049]; allocating, at the ingress port, a queue for the classification when no

previously-allocated queue exists for the classification [0011]; storing information

relating to the packet in the allocated queue [0006], [0008]; and after the storing step,

scheduling the packet for transmission between the ingress port and one of a plurality of

egress ports of the network device [0037]. Morgan, however, does not teach explicitly

searching a memory of allocated physical queues/a content addressable memory. Matsuo

teaches searching a memory of allocated physical queues/a content addressable memory

20 [0162]. It would have been obvious to one skilled in the art to modify Morgan to use

CAM as taught by Matsuo in order to enable high speed search [0049].

Regarding claim 2 and 12, Morgan teaches the queue is associated with an ingress

port of the network device [0008], [0032].

Regarding claim 3 and 13, Morgan teaches the queue is a virtual output queue

[0053].

Regarding claim 4 and 14, Morgan teaches detecting when a previously-allocated

queue is empty; and de-allocating the empty previously-allocated queue [0043], [0053].

Regarding claim 5 and 15, Morgan teaches the queue is associated with an ingress

port [0008].

Regarding claim 6 and 16, Morgan teaches the classification is based on a packet

source, a packet destination or a packet priority [0062].

Regarding claim 7 and 17, Morgan teaches the classification comprises a priority

number [0051].

Regarding claim 8 and 18, Matsuo teaches the determining step comprises

addressing the memory of allocated physical queues in a single cycle [0162] (Matsuo

teaches using CAM and its contents can be searched in one cycle, see instant

specification page 16 line 16-17).

Regarding claim 9 and 19, Morgan teaches updating a memory when a queue is

de-allocated, wherein the memory indicates whether the classification corresponds to the

previously-allocated queue [0034].

Regarding claim 10, 20 and 21, Morgan teaches the network device further

comprises a free list that indicates queues available for allocation and wherein the method

further comprises updating the free list when the previously-allocated queue is de-

allocated [0053].

Regarding claim 24, Matsuo teaches the memory is the content addressable

memory is searchable in one clock cycle [0162] (Matsuo teaches using CAM and its

contents can be searched in one cycle, see instant specification page 16 line 16-17).

Regarding claim 25, Morgan teaches the memory is a random access memory

[0034].

Regarding claim 26, Morgan teaches a method of allocating queues in a network

device, the method comprising: receiving a first packet at an ingress port of the network

device [0006], [0008]; making a first classification for the first packet [0018], the first

classification comprising at least one of a first egress port number or a first ingress port

number [0032]; determining whether a previously-allocated queue exists for the

classification [0049]; allocating , at the ingress port, a first queue for the first

classification if no previously-allocated queue exists for the classification [0011]; storing

information relating to the packet in the allocated queue [0006], [0008]; and after the

storing step, scheduling the first packet for transmission between the ingress port and one

of a plurality of egress ports of the network device [0037]; receiving a second packet

[0043], [0044]; making a second classification for the second packet [0043], [0044], the

second classification comprising at least one of a second egress port number or a second

ingress port number [0032]; and determining whether the first classification is the same

as the second classification [0043], [0044]. Morgan, however, does not teach explicitly

searching a memory of allocated physical queues. Matsuo teaches searching a memory

of allocated physical queues [0162]. It would have been obvious to one skilled in the art

to modify Morgan to use CAM as taught by Matsuo in order to enable high speed search

[0049].

Regarding claim 27, Morgan teaches the step of allocating a second queue,

different from the first queue, when the first classification is different from the second

classification [0043], [0044].

Regarding claim 28, Morgan teaches a step of assigning the second packet to the

first queue when the first classification is not different from the second classification

[0046].

Regarding claim 29, Morgan teaches determining a first number of packets that an

ingress port of the network device can receive [0040], [0041]; and allocating a second

number of physical queues for the ingress port, wherein the second number is less than or

equal to the first number [0044]-[0046].

Regarding claim 31, Morgan teaches identifying a category for each packet

arriving at the ingress port; correlating the category to an existing physical queue; and

storing packet information in the existing physical queue [0018].

Regarding claim 32, Morgan teaches identifying a category for each packet

arriving at the ingress port; and assigning the category to a physical queue, wherein the

network device allocates a new physical queue only when there is no existing physical

queue for the category [0043], [0044].

Regarding claim 33, Morgan teaches the packet information comprises control

information selected from a list consisting of destination information, source information,

priority information, payload type information and payload size information [0062].

3.   Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan et

al. in view of Matsuo et al. as applied to claim 29 above, and further in view of Jenne et

al. (US Pub. 2003/0126223).

Regarding claim 30, Morgan teaches determining a first number of packets that an

ingress port of the network device can receive [0040], [0041]; and allocating a second

number of physical queues for the ingress port, wherein the second number is less than or

equal to the first number [0044]-[0046]. Morgan in view of Matsuo, however, does not

teach the network device operates according to a Fibre Channel protocol and wherein the

determining step is based on a number of buffer-to-buffer credits granted by the ingress

port. Jenne teaches the network device operates according to a Fibre Channel protocol

[0018] and wherein the determining step is based on a number of buffer-to-buffer credits

granted by the ingress port [0006]. It would have been obvious to one skilled in the art to

modify Morgan in view of Matsuo to be with the network device operates according to a

Fibre Channel protocol [0018] and wherein the determining step is based on a number of

buffer-to-buffer credits granted by the ingress port as taught by Jenne in order to provide

end-to-end congestion control [0003].

Response to Arguments

4.   Applicant's arguments with respect to claim 1-33 have been considered but are

moot in view of the new ground(s) of rejection.

5.   In regarding to page 9-10, the applicant argues that Morgan does not teach

allocating a queue at an ingress port. Morgan teaches allocating a queue at an ingress

port [[0027], [0028]. In regarding to page 11, the applicant argues that Morgan does not

teach the limitations as amended. Matsuo et al. teaches using CAM [0162]. In regarding

to page 12, the applicant argues that Morgan teaches neither virtual output queue nor free

list indicating queues available for allocation and updating the free list when the queue is

de-allocated. Morgan teaches monitoring the addition or deletion of virtual ports and

tracking the available resources for each port as queues are created and released [0053].

Morgan also teaches updating port table 224 based on the port status and changes in

allocation [0053].

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

advisory action. In no event, however, will the statutory period for reply expire later than

SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to CLEMENCE HAN whose telephone number is (571)272-

3158. The examiner can normally be reached on Monday-Thursday 6-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Firmin Backer can be reached on (571) 272-6703. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO

Customer Service Representative or access to the automated information system, call

800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. H./
Examiner, Art Unit 2416

/FIRMIN BACKER/
Supervisory Patent Examiner, Art Unit 2416